

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 July 2003 (10.07.2003)

PCT

(10) International Publication Number
WO 2003/055453 A1

(51) International Patent Classification⁷: A61K 7/02,
7/032, C08J 3/00

(21) International Application Number:
PCT/IB2002/005257

(22) International Filing Date:
11 December 2002 (11.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
MI2001A002841
28 December 2001 (28.12.2001) IT

(71) Applicant (for all designated States except US): GAMMA
CROMA S.P.A. [IT/IT]; Via Brera, 6, I-20121 Milan (IT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): ANCOROTTI, Re-
nato [IT/IT]; Via Mazzini, 39, I-26013 Crema (IT).

(74) Agent: SANTORO, Tiziana; Marietti, Gislon e Trupiano
S.r.l., Via Larga, 16, I-20122 Milan (IT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

(48) Date of publication of this corrected version:
18 March 2004

(15) Information about Correction:
see PCT Gazette No. 12/2004 of 18 March 2004, Section II

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR THE PREPARATION OF COSMETICS

(57) Abstract: The invention relates to a process for the preparation of a cosmetic with a solid consistency and an excellent powdery marking effect, said process comprising extruding and drying a paste-type mixture and subsequent processing the solid product obtained.



WO 2003/055453 A1

"Process for the preparation of cosmetics"

Technical field

This invention concerns a new process for the preparation of make-up cosmetics such as eye shadow, face powder and blusher.

- 5 In particular, the invention concerns a process for the preparation of a cosmetic with a solid consistency and an excellent powdery marking effect, said process comprising extruding and drying a paste-type mixture and subsequent processing the solid product obtained.

Background of the invention

- 10 Face and body make-up cosmetics such as blusher and eye shadow are known. These products are normally produced in the form of pressed or non-pressed powders.

Both these processes result in products that offer both advantages and disadvantages, for example:

- 15 - pressed powders have the advantage that they are easy to apply but on the other hand after being used for some time they tend to crumble, dirtying the container and the objects with which they come into contact;
- non-pressed powders require a certain amount of skill for their
- 20 application as they are designed for a more professional use but the containers wherein they are packaged are provided with fastenings that prevent the product leaking out.

Summary of the invention

- It has now surprisingly been found that via a multi-phase process,
- 25 comprising mixing, extruding and drying, make-up cosmetics can be obtained free from the problems of the conventional products and with a solid consistency so that they can be produced in different formats; the process also results in products that are easy to apply and at the same time have a good powdery marking effect.

Thus, according to one of its aspects, the invention concerns a process for the preparation of a cosmetic that comprises extruding a paste obtained by mixing at least fats for cosmetic use, colouring powders and at least one solvent for cosmetic use, and subsequently drying the extruded product.

Detailed description of the invention

According to one embodiment, the invention concerns a process for the preparation of a cosmetic that comprises extruding of a paste obtained by mixing an emulsion of fats for cosmetic use with colouring powders and drying of the extruded product.

In further detail, the invention concerns a process for the preparation of a cosmetic that comprises:

- a) preparing the two phases, herein called "colouring powders" and "fatty emulsion";
- b) mixing said phases;
- c) extruding the paste obtained;
- d) drying the extruded product;
- e) sizing the dried product if required.

The "fatty emulsion" according to this invention can be obtained by treating fats for cosmetic use with at least one solvent, for example water or any solvent suitable for cosmetic use, including their mixtures; the essential feature of the solvent used is that it is possible to eliminate it by drying after extrusion at temperatures that do not alter the end product, advantageously at temperatures not exceeding 50°C.

The solvent can be neutral or coloured, in the latter case either due to its specific properties or by the addition of colouring substances. Water, being readily available and inexpensive, is the preferred solvent for this invention.

According to this invention, the expression "fats for cosmetic use" indicates any fatty material suitable for the preparation of cosmetics such as the esters of fatty acids, triglycerides, waxes, fruit and seed oil derivatives and extracts etc.

- 5 Fats for cosmetic use useful according to the invention are, for example, sorbitan stearate, isopropyl stearate, caprylic/capric triglycerides, dipentacrythryl hexahydroxystearate/ stearate rosinate (sold under the trademark Cosmol 168AR), magnesium myristate and olive oil.

- 10 According to this invention, the expression "colouring powders" indicates any powder, or mixture of powders, containing colouring pigments suitable for cosmetic use.

- Suitable colouring powders are, for example, those obtained by mixing synthetic and/or natural pigments, matte or pearly, with inert
15 powders as diluents such as mica or talc, in varying quantities according to the powdery effect and colouring power required.

The pearly and colouring substances that can be used include the following, for example:

TiO₂ (CI 77891) + mica (CI 77019)

- 20 Bismuth oxychloride CI 77163

Mica CI 77019

Copper and bronze powder CI 7740

Iron oxide CI 77491-2-9

Ultramarine blue CI 77007

- 25 Manganese violet CI 77742

Chromium hydrate oxide CI 77289

Anhydrous chromium oxide CI 77288

Ferric ferrocyanide CI 77510

Titanium dioxide CI 77891

- D&C red no. 7 Ca lake CI 15850:1
D&C red no. 19 Al lake CI 45170:3
D&C red no. 6 Ba lake CI 15850:2
D&C red no. 3 Al lake CI 45430:1
5 D&C red no. 9 Ba lake CI 15585:1
D&C red no. 21 Al lake CI 45380:3
D&C yellow no. 5 Al lake CI 19140:1
D&C red no. 30 Al lake CI 73360
D&C yellow no. 10 Al lake CI 47005:1
10 D&C red no. 27 Al lake CI 45410:2
D&C yellow no. 5 Al lake CI 19140:1
D&C orange 5 CI 45370:1
FD&C yellow no. 6 Al lake CI 15985:1
FD&C blue no. 1 Al lake CI 42090:2
15 D&C red 36 CI 12085
Carmine CI 75470

It is evident that the paste to be extruded can be obtained either by mixing each individual component, one after the other, in a mixer for example, or by first preparing the two "fatty emulsion" and "colouring
20 powders" phases and then mixing them.

The quantity of individual components can vary within a wide range according to the type of product required.

The "fatty emulsion" and "colouring powders" phases are preferably mixed in equal quantities, i.e. 50-50% by weight.

- 25 Extruding process of this invention can be performed by passing the paste (neutral or coloured) obtained in phase (b) through a normal extruder (or drawing machine) to obtain a semi-solid product, still damp, of the required shape.

The extruders useful in the process of the invention are, for example, piston or screw extruders. The product comes out of the extruder in different shapes according to the dies used (for example cylinder, parallelepiped etc.) and is cut to the required length.

- 5 The drying phase of the process of the invention can be performed according to the conventional techniques, for example:
- in an oven
 - under vacuum, or
 - with fluidised bed
- 10 provided that said process creates conditions that ensure the evaporation of almost all the solvent used for preparation of the paste to be extruded, whatever it is. Obviously lower temperatures require longer drying times whereas at higher temperatures drying times will be shorter. The drying (or baking) will be preferably performed at low
- 15 temperatures in order to permit slow elimination of the solvent from the paste and to obtain a well-pressed and uniform end product, without altering the end product.

Advantageously, the drying is performed in an oven at temperatures of 35-55°C, around 40°C for example, until almost complete

20 evaporation of the solvent, for example until the residual humidity is below or equal to 5%.

According to a preferred embodiment, the invention concerns a process for the preparation of a cosmetic comprising:

- preparation of a paste in a mixer by mixing an emulsion of fats for
- 25 cosmetic use with colouring powders;
- extrusion of the paste formed as above by means of an extruder or drawing machine according to various shapes and sizes;

- drying of the extruded products in an oven at a temperature of between 35 and 55°C until a residual humidity lower than or equal to 5% is obtained;
- if required or necessary, further processing of the dried product to
5 give it the appropriate shape and size.

The machines and processing techniques individually used in the process of the invention are known to the skilled in the art.

Other components, inert or non-inert, can be added to the colouring powders and fatty emulsion phases of the invention or directly to the
10 paste to be extruded. As an example, additives can be added, as solid and liquid preserving agents, such as sodium benzoate, thickeners such as starch and its derivatives, diluents, gelling agents and adhesives, in order to make the paste obtained by mixture of the two phases suitable for extrusion, various inert powders, fragrances if
15 required, etc. Said additives and their properties and uses in the field of cosmetics are well known to the skilled in the art.

Examples of additives are given in the experimental part.

The colouring powders are generally prepared by mixing the required pigments with inert components such as talc, silica and mica.
20 According to a preferred embodiment, parabenes and sodium dehydroacetate are added to the mixture to preserve the entire product during all the processing phases.

These components are advantageously ground for a few minutes to obtain a uniform powder.

25 The emulsion and the colouring powders prepared as above are then processed in a mixer and subsequently transferred to an extruder, where the dies give them the required shapes. At the extruder outlet, the product is placed preferably on sheets of inert material, wherein

"inert" means that it does not react with the product, for example PVC, steel or similar.

Extrusion is followed by drying, preferably in an oven, normally at a temperature of around 40-50°C for a time that depends on the evaporation speed, generally a few days.

Once drying has been completed, the product can be visually checked to identify any defects and hardness can be checked by means of a dynamometer.

The cosmetics prepared in this way can be further processed if necessary in order to reduce their dimensions or modify their shape, for example. These further operations can be performed manually or by means of appropriate machine tools.

The process of the invention therefore permits the production of cosmetics for decorative or curative make-up with the following characteristics:

- optimal consistency permitting direct application
- excellent marking effect and, at the same time,
- a creamy finish even though the products are powder-based.

The products obtained by means of the process of the invention therefore represent a valid alternative to the conventional products such as in pressed or non-pressed powders and creamy type products.

The following examples are provided for the purpose of illustrating the invention without limiting it in any way. It is understood that technically equivalent alternatives within the capacity of the skilled in the art, even if not explicitly mentioned, fall within the protection of the invention. As an example, the order of preparation and mixing of the ingredients in the process can be arbitrarily modified, obtaining products with the same characteristics.

EXAMPLE 1

GENERAL OPERATING METHOD

Appropriately clean and sanitise all the machinery required for the work process.

5 Preparation of the fatty emulsion

Weigh the water in an emulsifier; add the selected preservative and mix until fully dispersed. Add any thickeners and the mixture of liquid preservatives and disperse by means of a homogeniser. Weigh and dissolve the fatty mass (stearates, triglycerides) at approximately 60°C,
10 add it to the previously prepared mixture and homogenise. Add the gelling agent and process for a few minutes. Check the viscosity and pour into clean drums.

Preparation of the colouring powders

Weigh the inert components, binders and any preservatives (talc,
15 parabenes etc.) and grind for a few minutes. Weigh and add the raw materials making up the required colour and grind until obtaining a uniform mixture.

Preparation of the paste to be extruded and drying

Mix the fatty emulsion and colouring powders for approximately 10
20 minutes in a mixer. Empty into clean bags and extrude in the drawing machine. Bake the extruded product for 3 days at approximately 50°C.

EXAMPLE 2

Qualitative-quantitative composition of a typical paste before
25 extrusion

Water	39.40%
Fats for cosmetic use (mixture of isopropyl stearate, di-C12-13 alkyl malate, Cosmol 168AR)	6.00%

	Pigments in admixture with mica	38.4%
	Xanthan gum	0.05%
	Preservatives (mixture of sorbic acid and parabenes)	1.1%
	Inert components (mixture of zea mays, nylon powder, talc)	14.55%
5	Fragrance	0.5%

CLAIMS

1. Process for the preparation of a cosmetic which comprises extruding a paste obtained by mixing at least fats for cosmetic use, colouring powders and at least one solvent for cosmetic use, and subsequently drying the extruded product.
2. Process according to claim 1, wherein said paste is obtained by mixing at least one fatty emulsion in a solvent for cosmetic use, with colouring powders.
3. Process according to claim 1, wherein said fats are chosen from fatty acids, triglycerides, waxes, and fruit and seed oil derivatives and extracts.
4. Process according to claim 3, wherein said fats are chosen from sorbitan stearate, isopropyl stearate, caprylic/capric triglycerides, dipentacrythryl hexahydroxystearate/ stearate rosinate (Cosmol 168AR), magnesium myristate and olive oil.
5. Process according to claims 1 or 2, wherein said solvent for cosmetic use is water.
6. Process according to claims 2 to 5, wherein said emulsion furthermore comprises one or more solid or liquid additives chosen from preserving agents, thickeners, adhesives, diluents and gelling agents.
7. Process according to claim 1 or 2, wherein said colouring powders comprise synthetic and/or natural pigments, matte or pearly, with inert powders as diluents.
8. Process according to claim 1, wherein drying is performed at temperatures between 35 and 55°C.
9. Process according to claim 1, wherein the dried product is further processed in order to modify its dimensions and/or shape.

10. Process according to any one of the previous claims that comprises:

(a) preparing the two phases called "colouring powders" and "fatty emulsion";

5 (b) mixing said two phases;

(c) extruding the paste obtained as above;

(d) drying the extruded product;

(e) sizing the dried product, if required.

10 11. Process according to claim 10 wherein phase (c) is performed with an extruder or a drawing machine according to various shapes and sizes.

12. Process according to claim 10 wherein the fatty emulsion and colouring powders phases are mixed in a proportion of approximately 50-50% by weight.

15 13. Process according to claim 10 wherein phase (d) is performed in an oven, under vacuum or with fluidised bed.

14. Process according to claim 10 wherein phase (d) is performed in an oven at a temperature between 35 and 55°C, until obtaining a residual humidity below or equal to 5%.

20 15. Cosmetic suitable to be obtained via the process of any one of the previous claims.

16. Cosmetic of claim 15 which is an eye shadow or blusher.

17. Use of the product suitable to be obtained via the process of any one of the claims from 1 to 14 as a cosmetic.

INTERNATIONAL SEARCH REPORT

Intern. Application No
PCT/7 02/05257

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K7/02 A61K7/032 C08J3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61Q A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 994 264 A (D. VERDON ET AL.) 19 February 1991 (1991-02-19) the whole document ---	1-17
X	EP 0 021 135 A (SCHWAN-STABILO SCHWANHÄUSSER GMBH & CO) 7 January 1981 (1981-01-07) the whole document ---	1-17
A	GB 2 048 296 A (INTERGEN BEAUTY PRODUCTS LTD) 10 December 1980 (1980-12-10) the whole document ---	1
A	EP 0 756 865 A (L'OREAL) 5 February 1997 (1997-02-05) the whole document ---	1, 17
	-/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *&* document member of the same patent family

Date of the actual completion of the international search

23 June 2003

Date of mailing of the international search report

11/07/2003

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Glikman, J-F

INTERNATIONAL SEARCH REPORT

Interr I Application No
PCT/7 02/05257

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 734 733 A (MATSUSHITA ELECTRIC WORKS, LTD) 2 October 1996 (1996-10-02) the whole document -----	1
A	DATABASE CHEMICAL ABSTRACTS 'Online! retrieved from STN Database accession no. 112:223139 XP002245077 abstract & JP 01 211512 A (POLA CHEM. IND., INC.) 24 August 1989 (1989-08-24) -----	1,15-17
X	DATABASE CHEMICAL ABSTRACTS 'Online! retrieved from STN Database accession no. 119: 278379 XP002245078 abstract & JP 05 229917 A (TONBO PENCIL) 7 September 1993 (1993-09-07) -----	1-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern: Application No

PCT/02/05257

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4994264	A	19-02-1991	NONE	
EP 21135	A	07-01-1981	DE 2923080 A1 EP 0021135 A2 JP 1512006 C JP 55164615 A JP 63060723 B US 4332763 A	11-12-1980 07-01-1981 09-08-1989 22-12-1980 25-11-1988 01-06-1982
GB 2048296	A	10-12-1980	NONE	
EP 756865	A	05-02-1997	FR 2737111 A1 DE 69600374 D1 DE 69600374 T2 EP 0756865 A1 ES 2120800 T3 US 5965148 A	31-01-1997 30-07-1998 29-10-1998 05-02-1997 01-11-1998 12-10-1999
EP 734733	A	02-10-1996	JP 3026339 B2 JP 8257106 A DE 69623838 D1 DE 69623838 T2 EP 0734733 A1 US 5718889 A	27-03-2000 08-10-1996 31-10-2002 28-05-2003 02-10-1996 17-02-1998
JP 01211512	A	24-08-1989	JP 2731845 B2	25-03-1998
JP 05229917	A	07-09-1993	NONE	